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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
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09/388,671    09/02/99    ZHANG    T    MCRO:264/KRE

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WM02/0523

EXAMINER

DINH, D

ART UNIT

PAPER NUMBER

2674

DATE MAILED:

05/23/01

**Please find below and/or attached an Office communication concerning this application or proceeding.**

**Commissioner of Patents and Trademarks**

# Office Action Summary

Application No.

09/388,671

Applicant(s)

ZHANG ET AL.

Examiner

DUC Q DINH

Art Unit

2674

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 02 September 1999.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-55 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-55 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claims \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are objected to by the Examiner.
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. § 119

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

## Attachment(s)

- 15) ☒ Notice of References Cited (PTO-892)
- 16) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 17) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 5.
- 18) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_.
- 19) ☐ Notice of Informal Patent Application (PTO-152)
- 20) ☐ Other: \_\_\_\_\_.

## DETAILED ACTION

### *Claim Rejections - 35 USC § 112*

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 1, 10 recite the limitations "first transistor". There is insufficient antecedent basis for these limitations in the claims.
3. Claim 18 and 22 recite "first voltage". There is insufficient antecedent basis for these limitations in the claims.

### *Claim Rejections - 35 USC § 103*

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1-4 and 9-12, 16-29, 34-40 and 44-55 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant's Admitted Prior Art (APA) page 1-2 and 7-9 in view of Chi et al..

In reference to claim 1, the APA discloses in Fig. 8 a cathodoluminescent element comprising: emitter 18, a transistor 44, transistor 42. In addition, the APA discloses by controlling the gate voltage for transistor 42 for each element 10 in the an array, the degree to which each transistor 42 is turned on can be adjusted, this results in adjustment of the magnitude

of current  $I_{d1}$  flowing between drain terminal 46 of transistor 42, which in turn results in adjustment of the degree to which transistor 44 is turned on and hence the magnitude of current  $I_{d2}$  between emitter set 18 and ground potential as claimed. However, the APA fails to disclose a programmable element 43 in Fig. 9. Chi et al. disclose a new low voltage programming methods for storing multi-levels of threshold voltage  $V_t$  in flash memory cell in Fig. 5. In addition, the APA discloses that the programmable element 43 is conventionally used for storage of binary digital data and the prior art has been shown such that devices can be used for the purposes of storing analog data, where not merely the presence or absence of charge can be detected, but further where the level of stored charge can be detected when reading the cell.

It would have been obvious for one of ordinary skill in the art at the time of the invention was made to provide the method of programming for storing threshold voltage disclosed by Chi in the APA device because it would be promised for future generations of high density flash memory (see Chi 11.2.3, column 2, last paragraph).

In reference to claims 2-4, the APA discloses the transistor 42 and the infrared sensitive element 22 making of platinum silicide.

In reference to claim 9 the APA discloses that the infrared sensitive components is responsive to impinging infrared radiation to display a graphical image reflecting the presence and intensity of the infrared radiation

6. Claims 5-8, 13-15, 30-33, and 41-43 are rejected under 35 U.S.C. 103(a) as being unpatentable over APA in view of Chi and further in view of Cathey, Jr. et al. (6,181,308) hereinafter Cathey.

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In reference to claims 5-8, the APA and Chi disclose everything except for the structure of the cathodoluminescent. Cathey discloses in FIG. 2 that a cross-sectional view of a portion of a cold-cathode field emission display 26 according to one aspect of the present invention. A conductive layer 28 is formed on a substrate 30. In one aspect of the invention, the conductive layer 28 is a metal layer, and the substrate 30 is formed from silicon ... A resistive layer 32 is formed on the conductive layer 28. One or more cold-cathode emitters 34 are formed on the resistive layer 32. For clarity, only one emitter 34 is shown. An insulating layer 36 is also formed on the resistive layer 32, and cavities are formed in the insulating layer 36 to accommodate the emitters 34. A conductive extraction grid 38 is formed on the insulating layer 36. An anode 40, which acts as a display screen, is spaced a predetermined distance from the extraction grid 38 and has a cathodoluminescent coating 42 formed on an inner surface thereof (Fig. 2, col. 3, line 15-33).

It would have been obvious for one of ordinary skill in the art at the time of the invention was made to provide the method of constructing the structure of Cathey in the device of APA in view of Chi because it would provide a semiconductor structure providing for use in a field emission display (col. 2, lines 20-21).

In reference to claims 10-17 refer to the previous rejections as applied to claims 1-9. In addition, the APA discloses that those of ordinary skill in the art will appreciate that a practical FED (Field Emission Display) will incorporate many thousands of cathodoluminescent element such as element 10 in Fig. 7.

Claims 18-25 are method claims corresponding to the apparatus claims 1-17, and therefore, rejected based on the same basis set forth in said claims.

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In reference to claims 26-55, refer to the previous rejections as applied to claims 1-25.

*Conclusion*

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. See attached Form PTO 892.

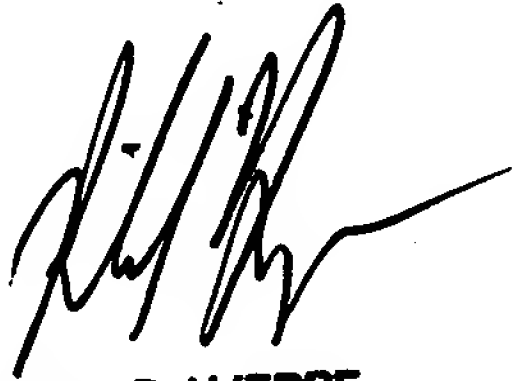
Any inquiry concerning this communication or earlier communications from the examiner should be directed to DUC Q DINH whose telephone number is (703) 306-5412. The examiner can normally be reached on Mon-Fri from 8:00.AM-4:00.PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, RICHARD A HJERPE can be reached on (703) 305-4709. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-9051 for regular communications and (703) 308-6606 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-4700.

DUC Q DINH  
Examiner  
Art Unit 2674

DQD  
May 16, 2001



RICHARD HJERPE  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2600